UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/760,661	01/17/2001	Oscar P. Pinto	219.39278X00	4549

			EXAMINER
21186	7590	03/15/2005	BARNES, CRYSTAL J

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ART UNIT	PAPER NUMBER
2121	

DATE MAILED: 03/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>18 January 2005</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
  closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-15</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) <u>10-12</u> is/are allowed.

6)☒ Claim(s) <u>1,3-9,13 and 14</u> is/are rejected.

7)☒ Claim(s) <u>2 and 15</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>10 July 2001</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
  application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   The following is a Non-Final Office Action in response to the Amendment

received on 18 January 2005. Claims 1-15 remain pending in this application.

Response to Arguments

2.   Applicant's arguments, see Remarks pages 5-6, filed 18 January 2005, with

respect to the rejection of claims 1, 3-5, 7, 13 and 14 under 35 USC 102(e) and the

rejection of claim 6 under 35 USC 103(a) have been fully considered and are

persuasive. Therefore, the rejections have been withdrawn. However, upon

further consideration, new grounds of rejections are made in view of USPN

6,188,675 B1 to Casper et al. and USPN 6,791,948 B1 to Desnoyers et al.

Claim Rejections - 35 USC § 102

3.   The text of those sections of Title 35, U.S. Code not included in this action

can be found in a prior Office action.

4.   Claims 1, 3, 5, 7, 13 and 14 are rejected under 35 U.S.C. 102(e) as being

anticipated by USPN 6,188,675 B1 to Casper et al.

As per claim 1, the Casper et al. reference discloses a method of discovering

topology of a subnet fabric, comprising: providing a plurality of elements (see

column 3 lines 61-65, "node") in a subnet fabrics (see column 4 lines 12-13,

"interconnection network 11"), said elements ("node") including switches (see column

4 lines 13-15, "switch nodes (SN) 20, 22, 24"), endnodes ("end nodes (EN) 16, 18"),

and a subnet manager ("managing nodes (MN) 10, 12"); issuing a packet (see column

6 lines 2-9, "packet") from said subnet manager (see columns 5-6 lines 66-2, "MN

10") to a first switch (see column 6 lines 9-11, "switch node (SN) 20") connected

thereto; reissuing a packet (see column 6 lines 33-35, "packet") from said first

switch ("SN 20") to every element ("SN22") connected thereto; repeating said

reissuing (see column 6 lines 44-45, "process is repeated") from every switch ("all

switch nodes") which receives a packet ("packet") until all elements ("all switch

nodes and end nodes") and all paths (see column 4 lines 15-18, "link 26")

therebetween have received at least one packet ("packet"); issuing a return packet

(see column 6 lines 9-14, 36-39, "response packet") from an endnode ("end nodes")

in response to a packet ("packet").

As per claim 3, the Casper et al. reference discloses node identification

numbers (see column 4 lines 39-46, "destination address field 35, source address

field 36") identify nodes ("destination, source node") of said subnet fabric

("interconnection network 11") so that path discovery (see column 3 lines 50-53,

"progressive discovery") is automatic (see column 3 lines 57-59, "automatically

identifying").

As per claim 5, the Casper et al. reference discloses every element ("nodes")

and every port ("port") therein are identified by number (see column 4 lines 39-46

"address" and column 5 lines 43-45, 55, "number") and a list (see column 5 lines 52-

57, "routing table") is made in every packet ("packet") of all elements ("nodes") and

ports ("ports") through which said packet ("packet") passes.

As per claim 7, the Casper et al. reference discloses a switch (see column 6

lines 48-52, "switch node 20") receiving a packet ("packet") which has passed there

through before ("configuration") will issue a return packet ("managing node address

register").

As per claim 13, the Casper et al. reference discloses a method of

discovering topology of a subnet fabric, comprising: providing a plurality of

elements (see column 3 lines 61-65, "node") in a subnet fabrics (see column 4 lines

12-13, "interconnection network 11"), said elements ("node") including switches (see

column 4 lines 13-15, "switch nodes (SN) 20, 22, 24"), endnodes ("end nodes (EN)

16, 18"), and a subnet manager ("managing nodes (MN) 10, 12"); assigning a unique

identifier (see column 3 lines 61-67, "special all-node address indicator, port

condition register") to each element ("node") and each port ("port") thereof in said

subnet fabric ("interconnection network 11"); determining a directed route packet

(see column 4 lines 39-46, "routing field 32") using said identifiers (see column 5

lines 18-21, "all-node address indicator, port condition register"); issuing said

packet (see column 6 lines 2-9, "packet") from said subnet manager ("MN 10") to

determine all paths (see column 4 lines 15-18, "link 26") in said subnet fabric

("interconnection network 11").

As per claim 14, the Casper et al. reference discloses said packet ("packet")

is issued using a broadcast method (see column 6 lines 15-17, 33-35, 44-45, "MN 10

sends packet to SN20, SN 20 to SN 22, ...").

Claim Rejections - 35 USC § 103

5.   The text of those sections of Title 35, U.S. Code not included in this action

can be found in a prior Office action.

6.   Claims 3-5, 8 and 9 are rejected under 35 U.S.C. 103(a) as being

unpatentable over USPN 6,188,675 B1 to Casper et al. in view of USPN 6,791,948

B1 to Desnoyers et al.

As per claim 3, the Desnoyers et al. reference further discloses node

identification numbers (see column 9 lines 49-53, "SN6, SN1, SN3, SN 5") identify

nodes (see column 3 lines 40-45, "switching nodes 11(1) – 11(N)") of said subnet

fabric ("computer network 10") so that path discovery (see column 4 lines 62-66,

"network topology discovery") is automatic.

As per claim 4, the Casper et al. reference does not expressly disclose said

return packets return along the same path as originally sent unless a switch

through which it passes has received an earlier packet.

The Desnoyers et al. reference discloses

(see column 12 lines 37-45, "... the path identifying the sequence of switching

nodes 11(n) and communication links 13(p) between computers 12 (m) ... can

determine the appropriate or optimal paths for the respective virtual circuits using

any convenient path determination methodology ...")

(see column 18 lines 33-40, "... return route information will enable the

switching nodes to return the identification response message over a path

comprising the same series of switching nodes as was used in transferring the
identification request message ...")

At the time the invention was made, it would have been obvious to a person
of ordinary skill in the art to modify the response packets taught by the Casper et
al. reference with the identification response messages taught by the Desnoyers
et al. reference to include the return route information that is used in
transferring the identification response message through the network from the
switching node 11(n) that generates the identification response message to the
computer 12(m) that generated the identification request message.

One of ordinary skill in the art would have been motivated to modify the
response packets with the identification response messages to include the return
route information to enable the switching nodes to return the identification
response message over a path comprising the same series of switching nodes as was
used in transferring the identification request message.

As per claim 5, the Desnoyers et al. reference further discloses every
element (see column 3 lines 40-45, "switching nodes 11(n), computers 12(m)") and
every port (see column 6 lines 32-35, "P ports") therein are identified by number
(see column 2 lines 58-60, "globally unique identifiers"; column 9 lines 49-53, "SN6,

SN1, SN3, SN 5"; column 9 lines 45-46, "P1, P2, P3, P5") and a list ("topology

information") is made in every packet ("packet") of all elements ("switching nodes

11(n), computers 12(m)") and ports ("P ports") through which said packet ("packet")

passes.

As per claim 8, the Casper et al. reference does not expressly disclose each

switch receiving a packet copies the incoming packet after adding the port number

at which the packet is received.

The Desnoyers et al. reference discloses

(see column 7 lines 11-20, "... the identification response message provided

by switching node 11(6) will contain information <P1,SN1,P2|P3,SN6>, essentially

appending it topology information P3,SN6 to the topology information P1,SN1,P2,

contained in the identification request message received from the switching node

11(1).")

(see column 7 lines 51-59, "... the identification response message provided

by switching node 11(3) will contain information <P1,SN1,P3|P8,SN3>, essentially

appending it topology information P8,SN3 to the topology information P1,SN1,P3,

contained in the identification request message received from the switching node

11(1).")

(see column 8 lines 23-31, "... the identification response message provided

by switching node 11(2) will contain information <P1,SN1,P4|P6,SN2>, essentially

appending it topology information P6,SN2 to the topology information P1,SN1,P4,

contained in the identification request message received from the switching node

11(1).")

At the time the invention was made, it would have been obvious to a person

of ordinary skill in the art to modify the response packets taught by the Casper et

al. reference with the identification response messages taught by the Desnoyers

et al. reference to include the topology information that identifies switching nodes

and ports over which the identification request was received.

One of ordinary skill in the art would have been motivated to modify the

response packets with the identification response messages to include the topology

information so that network topology information could be obtained by

computers/subnet managers and stored in a database to facilitate determining the

topology of a network.

As per claim 9, the Casper et al. reference does not expressly disclose the

port number through which the copied packet is to be issued is added before

issuing.

The Desnoyers et al. reference discloses

(see column 7 lines 20-24, "After generating the identification response message, the switching node 11(6) will forward the message through the port P3 over which the identification request message was received ...")

(see column 7 lines 59-63, "After generating the identification response message, the switching node 11(3) will forward the message through the port P8 over which the identification request message was received ...")

(see column 8 lines 31-35, "After generating the identification response message, the switching node 11(2) will forward the message through the port P6 over which the identification request message was received ...")

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the response packets taught by the Casper et al. reference with the identification response messages taught by the Desnoyers et al. reference to include the topology information that identifies switching nodes and ports over which the identification request was received.

One of ordinary skill in the art would have been motivated to modify the response packets with the identification response messages to include the topology information so that network topology information could be obtained by

computers/subnet managers and stored in a database to facilitate determining the

topology of the network.

7.   Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN

6,188,675 B1 to Casper et al. in view of USPN 5,884,036 to Haley.

As per claim 6, the Casper et al. reference does not expressly disclose said

packet contains a maximum hop count and a hop pointer indicating if said maximum

hop count has been reached.

The Haley reference discloses

(see column 5 lines 53-64, "... TOPOLOGY_REQUEST message, it sets the

HOP_COUNT field to a predetermined value. ... Every succeeding switch to

receive this message increments the value of the HOP_COUNT field by one.")

(see columns 6-7 lines 63-5, "... packet's HOP_COUNT is greater than the

HOP_COUNT stored in the table packet ... discard the incoming message packet

...")

(see column 7 lines 50-59, "... this HOP_COUNT is tested to determine if it

is greater than a predefined maximum hop count. If it is, the switch ... discards

the packet. This is a fail-safe mechanism ...")

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the fields of the packets taught by the Casper et al. reference with the fields taught by the Haley reference to include the HOP_COUNT field.

One of ordinary skill in the art would have been motivated to modify the fields of the packets reference with the HOP_COUNT field to provide reliable operation in a network containing physical loops where undesirable looping of topology information cells is avoided.

Allowable Subject Matter

8.   Claims 10-12 are allowable.

9.   Claims 2 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10.   The following is a statement of reasons for the indication of allowable subject matter:

As per claim 2, the prior art of record taken alone or in combination fails to teach said packet includes a batch request for recovering a plurality of information from each endpoint that receives said packet.

As per claim 10, the prior art of record taken alone or in combination fails to teach said packet containing a plurality of job requests in a batch request, each job request performing a job on each endnode reached.

As per claim 15, the prior art of record taken alone or in combination fail to teach said packet is also issued using a batch request.

Conclusion

11.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to data routing in general:

USPN 6,538,991 B1 to Kodialam et al.

USPN 6,047,330 to Stracke, Jr.

USPN 6,041,049 to Brady

Any inquiry concerning this communication or earlier communications from

the examiner should be directed to Crystal J. Barnes whose telephone number is

571.272.3679. The examiner can normally be reached on Monday-Friday alternate

Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Anthony Knight can be reached on 571.272.3687. The fax

phone number for the organization where this application or proceeding is assigned

is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR

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direct.uspto.gov. Should you have questions on access to the Private PAIR system,

contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Crystal J Barnes

CJB
11 March 2005